

Claim 14 (currently amended): An isolated mammalian cell comprising said vector of claim 12, wherein expression of said nucleotide sequence of said vector results in production of altered levels of arachidonic acid (AA), eicosapentaenoic acid (EPA), gamma-linolenic acid (GLA) or stearidonic acid (STA), when said cell is grown in a culture media comprising at least one fatty acid selected from the group consisting of linoleic acid (LA), alpha- linolenic acid (ALA), dihomo-gamma-linolenic acid (DGLA) and eicosapentaenoic acid (EPA).

Claim 15 (currently amended): An isolated plant cell[[,]] ~~plant~~ or plant tissue comprising said vector of claim 12, wherein expression of said nucleotide sequence of said vector results in production of a polyunsaturated fatty acid by said plant cell, plant or plant tissue.

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Claim 16 (^{currently amended} ~~previously presented~~): The isolated plant cell[[,]] ~~plant~~ or plant tissue of claim 15 wherein said polyunsaturated fatty acid is selected from the group consisting of AA, EPA, GLA and STA.

^{currently amended}
Claim 25 (~~withdrawn~~): A method for producing a polyunsaturated fatty acid comprising the steps of:

- a) isolating a nucleotide sequence ~~selected from the group consisting of~~ comprising SEQ ID NO:13 ~~and SEQ ID NO:32~~;
- b) constructing a vector comprising said isolated nucleotide sequence;
- c) introducing said vector into a host cell in vitro for a time and under conditions sufficient for expression of $\Delta 6$ -desaturase enzyme; and